LISITING OF CLAIMS

Claim 1. (original) An apparatus, comprising:

a) a micro machined optical element; and

b) a magnetic sensor disposed on the micro machined optical element.

Claim 2. (original) The apparatus of claim 1 wherein the magnetic sensor senses a magnetic field that is used to actuate the micro machined optical element.

Claim 3. (original) The apparatus of claim 1 wherein the micro machined optical element includes a moveable portion and at least one magnetic sensor disposed on the moveable portion.

Claim 4. (original) The apparatus of claim 3 wherein the at least one magnetic sensor includes a sensor selected from the group consisting of , magneto resistive sensors, giant magnetoresistance sensors, colossal magnetoresistance sensors, anisotropic magnetoresistance sensors, magnetic tunnel junction devices, Hall effect sensors, flux sensing coils, magnetostriction sensors and magneto optic sensors.

Claim 5. (original) The apparatus of claim 3 wherein the micro machined optical element includes a fixed portion and at least one sensor further includes one or more magnetic sensors disposed on the fixed portion.

Claim 6. (original) The apparatus of claim 5 wherein the magnetic sensor disposed on the fixed portion is disposed on a sidewall of the fixed portion.

Claim 7. (original) The method of claim 5 wherein the fixed portion includes a base and the magnetic sensor that is disposed on the fixed portion is disposed on the base.

Claim 8. (original) The apparatus of claim 5 wherein the fixed portion includes a top chip and the sensor is disposed on the top chip.

Claim 9. (original) The apparatus of claim 5 wherein the sensor that is disposed on the movable portion and the sensor that is disposed on the fixed portion are electrically coupled in a bridge circuit.

Claim 10. (original) The apparatus of claim 9 wherein the bridge circuit is a Wheatstone bridge circuit.

Claim 11. (original) The apparatus of claim 1 wherein the magnetic sensor senses a sense magnetic field that is separate from a magnetic field that actuates the micro machined optical element.

Claim 12. (currently amended) The apparatus of claim 11, ~~wherein~~ further comprising a magnetic structure disposed on the micro machined optical element, wherein the magnetic structure creates the sense magnetic field or changes the magnitude or direction of the sense magnetic field.

Claim 13. (original) The apparatus of claim 12, wherein the at least one magnetic sensor is selected from the group consisting of , magneto resistive sensors, giant magnetoresistance sensors, colossal magnetoresistance sensors, anisotropic magnetoresistance sensors, magnetic tunnel junction devices, Hall effect sensors, flux sensing coils, magnetostriction sensors and magneto optic sensors.

Claim 14. (original) The apparatus of claim 12 wherein the at least one magnetic sensor includes two or more magnetic sensors.

Claim 15. (original) The apparatus of claim 14 wherein the two or more sensors are coupled together in a bridge circuit.

Claim 16. (original) The apparatus of claim 15 wherein the bridge circuit is a Wheatstone bridge circuit.

Claim 17. (original) The apparatus of claim 12 wherein the micro machined optical element includes a moveable portion wherein the moveable portion is moveable with respect to an axis.

Claim 18. (original) The apparatus of claim 17 wherein the magnetic material is disposed substantially parallel to the axis.

Claim 19. (original) The apparatus of claim 18 wherein the at least one sensor includes a magnetoresistive sensor;

wherein the magnetoresistive sensor has a "C" shape having a gap;

wherein, in at least one position of the moveable element, the magnetic material is disposed within the gap.

Claim 20. (original) The apparatus of claim 17 wherein the magnetic material is disposed substantially perpendicular to the axis.

Claim 21. (currently amended) The apparatus of claim 20 wherein the at least one sensor includes a magnetoresistive sensor;

wherein the magnetoresistive sensor has a "C" shape having a gap [[;]].

Claim 22. (original) The apparatus of claim 21 wherein, in at least one position of the moveable element, the magnetic material is disposed within the gap.

Claim 23. (original) The apparatus of claim 12 wherein the at least one magnetic sensor includes a magnetoresistive sensor characterized by a serpentine shape.

Claim 24. (withdrawn) The apparatus of claim 1, further comprising:

means for measuring a temperature; and

means for compensating for a change in the property of the at least one magnetic sensor with temperature.

Claim 25. (withdrawn) The apparatus of claim 24, wherein the compensating means includes means for determining a relationship between the property of the magnetic sensor and the measured temperature.

Claim 26. (withdrawn) The apparatus of claim 24, wherein the compensating means includes means for regulating the temperature to maintain the temperature within a desired range.